

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/815,884

Filing Date: March 23, 2001

Title: BATTERY-OPERATED WIRELESS-COMMUNICATION APPARATUS AND METHOD

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REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on December 19, 2005, and the references cited therewith. This first reply is being filed within three months of the mailing date of the Non-Final Office Action.

Claims 31 and 33 have been amended to correct spelling. No new matter is added. As a result, claims 1-41 are now pending in this application.

Information Disclosure Statements

Applicant brings to the attention of the Examiner for consideration the Supplemental IDS submitted on December 12, 2005, along with the Supplemental IDS attached to this submission. Applicant respectfully requests that these Supplemental Information Disclosure Statements be entered and the documents listed on the Forms SB/08 be considered by the Examiner, initialed and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that copies of the SB/08 forms, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Claim Rejections – 35 USC § 103

Regarding Section 2 of the December 19, 2005 Office Action, claims 1, 5-8, 9, 11, 16-20, 22, and 26 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tuttle et al. (U.S. Patent 6,078,791, hereinafter "*Tuttle*") with a view to Meunier et al. (U.S. Patent 5,202,201, hereinafter "*Meunier*"). Applicants respectfully traverse.

The Applicants have previously overcome a substantially identical rejection that used Little (U.S. Patent 4,740,431, hereinafter "*Little*") as the secondary reference. As Applicants successfully argued in the prior Amendment and Response, a combination of *Tuttle* and *Little* would have the preassembled thin-film battery of *Little* connected to the substrate of *Tuttle* with conductive adhesive, as is described in *Tuttle* (i.e., column 8, lines 20-26). *Meunier* provides little more than *Little*, in that both references assemble a thin-film battery on a substrate. *Meunier* does suggest a flexible substrate, however a combination once again would have the

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preassembled thin-film battery of *Meunier* connected to the substrate of *Tuttle* with conductive adhesive, as is described in *Tuttle*.

Examiner admitted that *Tuttle* does not teach a first conductive layer deposited on the support structure and a thin-film battery deposited as successive thin-film depositions over at least a portion of the first conductive layer. *Meunier* describes making a battery as successive thin-film layers, but does not add other electronics or functions. *Tuttle* takes an already-made battery and glues it in place. There is no motivation in the references to change them.

It is impermissible to use the present application as a template to pick and choose selected features of *Little* or *Meunier* (i.e., successive deposition of thin-film battery layers on a substrate) into *Tuttle* in place of what *Tuttle* already does (i.e., to glue a thin-film battery in place on the substrate with antenna). *Meunier* describes making a thin-film battery. *Tuttle* takes an already-made battery and places or glues it into this device. There is nothing in *Tuttle* that describes or suggests depositing the battery as thin-film layers on to the substrate. There is nothing in *Meunier* that describes or suggests mounting an antenna on to the substrate that has the battery deposited as successive thin film layers. In contrast, for example, the present invention claim 1 recites a combined battery and wireless-communications apparatus comprising: a flexible support structure; a first conductive layer deposited on a first surface area of the support structure; a thin-film battery deposited as successive thin-film depositions over at least a portion of the first conductive layer, the battery comprising a cathode layer; a solid-state electrolyte layer, and an anode layer deposited such that either the anode layer or the cathode layer is in electrical contact with the first conductive layer, and the electrolyte layer in contact with and completely separating the anode layer and the cathode layer; an antenna mounted to the support structure; and an electronic communications circuit mounted to the support structure and electrically coupled to the battery and the antenna to transceive radio communications. Accordingly, reconsideration and withdrawal of the rejection of claims 1, 5-8, 9, 11, 16-20, 22, and 26, and an early indication of allowance is respectfully requested.

Further (and as Applicant fully described in the prior Response), regarding claims 5 and 16, the Examiner again argues that since *Tuttle* describes a flexible substrate that it is inherent that the flexible support member would inherently bend to match a curved shape. Applicants

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respectfully traverse. The reference says the support member can be flexible, not that the resulting structure is or could be curved with the battery on the concave face. The battery and IC of *Tuttle* is shown as a flat planar structure. The present claims 5 and 16 recite "a curved shape having a convex face and an opposing concave face, and the battery is curved and located on the concave face." Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Further, regarding claims 6-8 and 17-19, the Examiner again (but in slightly different words than in the prior Office Action) argues that since *Tuttle* describes various modifications and changes may be made in the antenna configurations, battery arrangements and the like, that it would have been obvious to deposit the antenna on the battery. Applicants respectfully traverse. Regarding claims 6 and 17, *Tuttle* says the antenna could be formed from the entire outer surfaces of two batteries 142 and 144 serve as the "bow tie" antenna structure for the enclosed transceiver, (these are not "antenna is a thin-film trace deposited on the battery"). It is impermissible for the Examiner to use hindsight gained from the present invention to extend *Tuttle*'s ephemeral alternatives that do not even say place the antenna on the battery to include the recited combinations of claims 6 and 17 including the limitations of the independent claims 1 and 11. Regarding claims 7 and 18, *Tuttle* Figures show the antenna around the outside of the IC, not on it, and column 4 line 8 says the "antenna [is] incorporated **within** the IC or positioned adjacent to the IC". (Emphasis added) This does not meet the claimed recitation "antenna is a thin-film trace deposited on the electronic communications circuit." Regarding claims 6-8 and 17-19 these claims must be considered as a whole, including the base limitations of the independent claims, and appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding claims 9 and 20, the Examiner again argues that Figure 9 of *Tuttle* somehow teaches recharging "the battery." Applicants respectfully traverse. *Tuttle* describes only a capacitor that is periodically charged by conventional RF charging circuits. *Tuttle* describes a "passive or battery-less device environment, since it contains no battery therein" (*Tuttle* column

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10, line 43) "wherein the battery has been altogether eliminated" (*Tuttle* column 10, lines 39-40). *Tuttle* teaches away from recharging the battery since this capacitor charge is not a charge on a battery and since there is no battery. Further, these claims must be considered as a whole, including the base limitations of the independent claims, and also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding claims 22 and 26, the Examiner again argues that Figure 9 of *Tuttle* somehow teaches recharging "the battery." Applicants respectfully traverse. As described above, *Tuttle* describes only a capacitor that is periodically charged by conventional RF charging circuits. *Tuttle* describes a "passive or battery-less device environment, since it contains no battery therein" (*Tuttle* column 10, line 43) "wherein the battery has been altogether eliminated" (*Tuttle* column 10, lines 39-40). *Tuttle* teaches away from recharging the battery since this capacitor charge is not a charge on a battery and since there is no battery. Further, these claims must be considered as a whole, including the base limitations of the independent claims, and also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding Section 3 of the December 19, 2005 Office Action, claims 2-4, 12-15, 23, 24, 31, 32, and 34-39 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over *Tuttle* et al. (U.S. Patent 6,078,791, hereinafter "*Tuttle*") with a view to *Meunier* et al. (U.S. Patent 5,202,201, hereinafter "*Meunier*") and further in view of *Bates* (U.S. Patent 5,569,520, hereinafter "*Bates*"). Applicants respectfully traverse.

Regarding claims 2-4, 12-15, 23, 24, and 34-39, with respect to claims 1, 11, 22, 33, the Examiner argues that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the deposited layers of *Tuttle* modified with the lithium compounds as taught by *Bates* to form a rechargeable thin-film battery capable of providing moderate amount of power suitable for cellular telephones, laptop computers, hearing aids, and cardiac pacemakers. Applicants respectfully traverse.

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The Examiner admitted that a *Meunier* of *Tuttle* modification is silent on an anode or cathode with an intercalation material and the electrolyte comprises LIPON. There is nothing in *Meunier* or *Tuttle* that describes or suggests depositing the battery as thin-film layers on to the substrate. There is nothing in *Meunier* or *Tuttle* that describes or suggests mounting an antenna on to the substrate that has the battery deposited as successive thin film layers. Additionally, claims 2, 4, 12-15, 23, 24, and 34-39 must be considered as a whole, including the base limitations of the independent claims, and they also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding claims 31 and 32, the Examiner again (as in the prior Office Action) argues that Figure 9 of *Tuttle* somehow teaches recharging “the battery.” Applicants respectfully traverse. As described above, *Tuttle* describes only a **capacitor** that is periodically charged by conventional RF charging circuits. *Tuttle* describes receiving power from the antenna in a “passive or **battery-less** device environment, since it contains no battery therein” (*Tuttle* column 10, line 43, emphasis added) “wherein the **battery has been altogether eliminated**” (*Tuttle* column 10, lines 39-40, emphasis added). *Tuttle* teaches away from recharging the battery since this antenna power deposited as charge on its capacitor is not a charge on a battery, since there is **no battery**. In contrast, for example, the present invention claim 31 recites an integrated combined rechargeable battery and wirelessly recharging hearing aid apparatus comprising: a support structure; a first conductive layer deposited on a first surface area of the support structure; a thin-film battery deposited as successive thin-film depositions over at least a portion of the first conductive layer, the battery comprising a cathode layer; a solid-state electrolyte layer, and an anode layer deposited such that either the anode layer or the cathode layer is in electrical contact with the first conductive layer, and the electrolyte layer in contact with and completely separating the anode layer and the cathode layer; a wireless energy-receiving device mounted to the support structure; and an electronic hearing-aid circuit mounted to the support structure and including a recharging circuit, the recharging circuit electrically coupled to the battery and the energy-receiving device to recharge the battery using energy received by the

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energy-receiving device. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding Section 4 of the December 19, 2005 Office Action, claims 10, 21, 25, 33, 40, and 41 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tuttle et al. (U.S. Patent 6,078,791, hereinafter "*Tuttle*") with a view to Meunier et al. (U.S. Patent 5,202,201, hereinafter "*Meunier*") and further in view of Little (U.S. Patent 4,740,431, hereinafter "*Little*"). Applicants respectfully traverse.

Regarding claims 10, 21, 25, 40, and 41, with respect to claims 1, 11, 22, 31, and 33, the Examiner argues that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the RFID device of *Tuttle* modified to include the photovoltaic cell and charge circuits of *Little* to provide long term activation of the RFID device. Applicants respectfully traverse. Claims 10, 21, 25, and 40 must be considered as a whole, including the base limitations of the independent claims, and they also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding claim 33, the Examiner argues that it would have been obvious to one of ordinary skill in the art at the time of the invention to realize the thin-film battery of *Tuttle* as applied on the flexible substrate of *Meunier*. Applicants respond that *Meunier* teaches making a battery, and *Tuttle* take a battery previously made and places the already-made battery in its device. There is no motivation in these references to make the modifications proposed by the Examiner. The Examiner twice discusses wireless communications in the rejection of claim 33, which Applicants believe are mistakes, since claim 33 mentions no wireless communications function. Further, the Examiner argues that it would have been obvious to one of ordinary skill in the art at the time of the invention to recognize in the thin-film circuit of *Tuttle* modified the battery based circuit suitable to drive other electronic loads including calculators and talking wristwatches in an efficient manner. Applicants respectfully traverse. Claim 33 must be considered as a whole, and it appears to be allowable for the reasons argued above for the other independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

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Regarding Section 5 of the December 19, 2005 Office Action, claims 27-30 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tuttle et al. (U.S. Patent 6,078,791, hereinafter "*Tuttle*") with a view to Meunier et al. (U.S. Patent 5,202,201, hereinafter "*Meunier*") and further in view of Lew et al. (U.S. Patent 6,608,464, hereinafter "*Lew*").

Applicants respectfully traverse.

Regarding claims 27 and 29, with respect to claim 22, the Examiner argues that it would have been obvious to one of ordinary skill in the art at the time of the invention to expand the energy source of *Tuttle* modified to include the alternatives of *Lew* to ensure recharging of the batteries. Claims 27 and 29 must be considered as a whole, including the base limitations of the independent claims, and additionally they appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

Regarding claims 28 and 30, with respect to claim 22, the Examiner argues that since *Lew* teaches the idea of a variety of sources, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply any other suitable power source to *Tuttle* modified to ensure the device has available power to operate. The Examiner provides no reference to an acoustic transducer, but instead only states that *Lew* teaches a variety of sources. Applicants respectfully traverse. Applicants respectfully request under MPEP 2144.03 that the Examiner **provide a reference** in support of this rejection. Without such a showing for a *prima facie* case of obviousness, the claims appear to be in condition for allowance. Additionally, claims 28 and 30 must be considered as a whole, including the base limitations of the independent claims, and additionally they appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection and an early indication of allowance is respectfully requested.

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CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney (952-278-3501) to facilitate prosecution of this application.

If not otherwise provided herewith, please consider this a request for an extension of time for a sufficient number of months to enter these papers. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 502931.

Respectfully submitted,

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CERTIFICATE OF TRANSMISSION: I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. 1-571-273-8300 on this 20th day of March, 2006.


Charles A. Lemaire